an insight into the conditions of rural hygiene which was most useful to him in after life. So valuable did the central health authority of those days consider Bruce-Low's work in Helmsley that he was invited in 1887 to become a medical inspector of the Local Government Board, an invitation which he readily accepted. Here he came into intimate association with Buchanan, Thorne-Thorne, and Power, who, as successors to John Simon, were engaged in building up the English public health service. Bruce-Low conducted several inquiries and wrote many important reports for the Local Government Board, the best known of which are those on the progress and diffusion of plague, cholera, and yellow fever, the epidemiology of typhus fever, acute anterior poliomyelitis (1916), and smallpox (1918). Through his epidemiological studies Bruce-Low acquired an intimate knowledge of port sanitary administration, and in reply to an inquiry, furnished the Rockefeller Institute with a statement on the facts which led to the abandonment of quarantine in the United Kingdom. After holding many examinerships for the diploma of public health, he was appointed by the General Medical Council their Inspector of Examinations for degrees and diplomas in public health, work which occupied him for the greater part of the last two years of his life, and the outcome of which was a valuable report and a revised scheme of examination, now under consideration. Bruce-Low became assistant medical officer of the Local Government Board in 1900, retiring in 1911. He served on the War Office Anti-typhoid Inoculation Committee, 1904–12, and on the outbreak of war he was recalled to the Local Government Board, finally retiring in 1920.

Bruce-Low was always ready to help his colleagues, to whom he was a true friend; he was proud of being a Civil Servant, and his distinguished services to his country and to the science of preventive medicine were officially recognised in 1919, when he was appointed C.B. R. T. H.

WE notice with much regret the announcement in the *Lancet* of the death, on May 18, of Prof. Charles Louis Alfonse Laveran, Foreign Member of the Royal Society, at the age of seventy-six years.

Current Topics and Events.

THE Royal Academy of Belgium celebrated the one hundred and fiftieth anniversary of its foundation on May 23 and 24 in the presence of a large number of its members and of delegates from other academies and learned institutions. On the Wednesday afternoon, May 24, numerous congratulatory addresses were presented at the Palais des Académies, and the members and visitors were afterwards received at the Hôtel de Ville by the Mayor of Brussels, M. Adolf Max, and his Aldermen, MM. Steens, Vande Meulebrouck and Coelst; a reception was held at the Palais des Académies in the evening, where an exhibition of medals and portraits connected with the history of the Academy had been arranged. The anniversary celebration itself was held in the large hall of the Academy on the afternoon of May 25 in the presence of the King, the Minister of Arts and Science, M. Hubert, formerly Rector of the University of Liége, Cardinal Mercier, and the English, French, Dutch, Spanish, and Japanese Ambassadors. The president, M. Vauthier, in an address of welcome, briefly sketched the history of the Academy and its influence on the intellectual development of Belgium. The Minister of Justice, M. Masson, tendered the congratulations of the Belgian Government, and Monseigneur Baudrillart spoke in the name of the Institut de France. Sir William B. Leishman, as vice-president of the Royal Society, represented the British universities and learned societies; he referred to the activities of Belgian bacteriologists and paid a high tribute to the work of M. Jules Bordet. MM. Lameere, Pirenne, and Verlant, representing respectively the classes of science, of letters, and moral and political sciences, and of fine arts, contributed summaries of the activities of their several sections of the Academy. Later the visitors were received by the King and the Queen at the Palace of Laeken, and in the evening a banquet was held at the Hôtel Astoria.

THE Council of the Museums Association has addressed an emphatic protest to the Prime Minister against the proposal to reinstitute charges for admission to the National Galleries and Museums. It is only in recent years that the importance of Museums and Art Galleries as factors in the educational machinery of the country has been fully recognised, and this is due largely to the progressive action of the Government in advocating consistently the policy of free admission and in providing guides which have advanced materially the popularity and usefulness of our National Institutions. The Association feels that the proposed reversal of a policy adopted after many years' experience will be a serious set-back to Museum work, both in regard to the wider education of the nation and the provision of wholesome recreation for the people. If the proposal is adopted it is bound to have an influence on the policy of provincial Museums, the governing bodies of which are largely influenced by the example set by the State. The Association suggests that the far-reaching injury likely to follow the imposition of admission fees would greatly outweigh the small additional income, 10,000*l.*, which is expected to accrue.

THE highly controversial subject of the college-trained engineer was chosen by Prof. Frederic Bacon for his presidential address to the Swansea Engineering Association of Students of the South Wales Institute of Engineers. Prof. Bacon had a good deal to say about the conditions which the student is likely to find in works after he leaves college, and the kind of experience which he will then acquire. One of the least satisfactory features of the pre-war position was that scarcely any British firms were undertaking new development work; nearly every innovation in engineering practice was imported from the continent or the United States, a state of affairs extremely damaging to the prestige of British engineering and very unfair to the scientifically trained engineers of this country. The war showed the capabilities of British men of science and engineers when they work hand in hand and with the necessary resources placed at their disposal. It is the duty of college-trained men to show their faith in science, and to champion her cause when it is unfairly attacked by men who are ignorant of her methods and mission. The engineer can never lose sight of utilitarian ends, but he should know enough of the spirit of science and the recent history of industry and invention to respect and encourage the work of the investigator in pure science.

The third International Congress of the History of Medicine will be held in London on July 17 to 22 inclusive. The congress will be opened at 10.30 A.M. on July 17 by the Minister of Health at the Royal Society of Medicine, where the delegates will be received and an address will be delivered by the president, Dr. Charles Singer. In the afternoon there will be a reception and an address by Sir Norman Moore, President of Honour, at the Royal College of Physicians. In the evening the President and Mrs. Singer will receive the members of the congress at the Royal Society of Medicine, when an address will be given by Prof. Elliot Smith. The sessions of the congress will be held on the following days from 10.30 A.M. to 12.30 P.M., and from 2.30 P.M. to 4.30 P.M., at the Royal Society of Medicine. A committee of ladies has been organised to conduct ladies attending the congress to various places of interest in London. The Wellcome Historical Museum, 54A Wigmore Street, where a special exhibition will be held, will be open from 10 A.M. to 5.30 P.M. daily. Objects of interest will also be on view in the library of the Royal Society of Medicine. Arrangements have been made for visits to the Royal College of Surgeons, the Society of Apothecaries, the Barbers' Hall, St. Bartholomew's Hospital, and other places of medico-historical interest. Further information can be obtained on application to the general secretary, Dr. J. D. Rolleston, 21 Alexandra Mansions, King's Road, S.W.3.

Exceptionally hot weather for the time of year was experienced over the south-eastern and central portions of England on the four days from May 21 to 24, and record temperatures occurred in many places. At the Royal Observatory, Greenwich, observations of the highest order are obtainable for the past 80 years, since 1841, and approximately trustworthy observations can be obtained for as far back as 1814, embracing in all a period of 109 years. In the recent hot spell the sheltered thermometer at Greenwich registered 90°·2 on May 22 and 90°·6 on May 24. The previous records for May since 1841 show only eight days with a temperature so high as 85°, the maximum being 87°·5 on May 26, 1880, followed by 87°·0 on May 19, 1868, and 86°·5 on May 25, 1920, while a temperature of 90° has occurred only seven times during June since 1841, and once only since 1897. The mean maximum shade temperature for the four consecutive hot days was 88°·8, and the mean solar radiation temperature was 148°·5, the maximum being 151° on May 23. In May 1913 there were five consecutive days with the temperature above 80°, the highest temperature being 84°·1 and the mean for the period 82°·2; this is the record for consecutive hot days and also for the number of hot days in the month, the total days being five, the same as this year, which includes May 8 last. In 1870 there were four consecutive days with the temperature above 80°, the mean for the four days being 82°·4. On three consecutive nights during the hot spell the minimum temperature was above 58°, the temperature on the warmest night being 58°·9, and the lowest temperature for four days was 57°·9. Previous records from 1841 show three instances only of warmer nights, 61°·5 on May 25, 1841, 61°·3 on May 24 and 60°·3 on May 29, 1847. The mean daily temperatures at Greenwich for the three days May 22 to 24 were 74°·5, 73°·5, and 74°·8 respectively, which is 20° above the average. The previous highest day mean in May since 1841 was 71°·3 on May 28, 1841, and going back to 1814 the highest day mean was 72°·4 on May 15, 1833. Since the extreme heat of 90°·6 at Greenwich on May 24 the day temperatures steadily decreased, reaching 73° by the end of the week. Thunder-storms accompanied by a heavy fall of hail and rain were associated with the recent hot spell.

At the annual general meeting of the Institute of Physics held on May 23 in the rooms of the Royal Society, the following Officers and Board were elected to serve for the year beginning October 1, 1922: *President*, Sir J. J. Thomson; *Past-President*, Sir R. T. Glazebrook; *Vice-Presidents*, Sir Charles Parsons, Prof. W. Eccles, Prof. C. H. Lees, Mr. C. C. Paterson; *Non-Official Members of the Board*, Dr. R. S. Clay, Prof. C. L. Fortescue, Prof. A. Gray, Major E. O. Henrici, Sir J. E. Petavel, Dr. E. H. Rayner, Sir Napier Shaw, Mr. R. S. Whipple; *Representatives of Participating Societies:* Physical Society—Mr. C. E. Phillips, Mr. F. E. Smith; Faraday Society—Mr. W. R. Cooper; Optical Society—Mr. John Guild; Röntgen Society—Dr. G. W. C. Kaye; Royal Microscopical Society—Mr. J. E. Barnard. The Annual Report stated that there were 408 Members of the Institute at the end of the year, of whom 258 were Fellows. The Institute is watching the possibility of establishing a central library for physics, although the financial difficulties in the way of its realisation are stated to be considerable. In the course of his presidential Address, Sir J. J. Thomson, after dealing with the project to establish a Journal of Scientific Instruments, spoke of the present depression in industry, but he made the reassuring statement that out of 67 students who graduated with distinction in physics and chemistry in 1921, 46 had obtained suitable positions, while 14 were doing research work. He hoped that the series of lectures on physics in industry which had been established would act to some extent as "Refresher Courses." Speaking of the difficulties which the Safeguarding of Industries Act had, in many instances, placed in the way of research, he characterised research itself as a "Key Industry," and he hoped that the Government would put every facility in the way of research workers to enable them to obtain without delay the apparatus they required.

THE idea of establishing an International Hydrographic Bureau was suggested some years before the war, and the project took definite shape when the Admiralty called an International Hydrographic Conference in London in July 1919. Twenty-four of the maritime states of the world were represented and steps were taken to establish a permanent bureau. A committee was appointed which, after nearly two years' work, devised an organisation that proved acceptable to the states represented. Captain Spicer-Simson, the secretary-general, gives some details regarding the Bureau in the *Geographical Journal* for April. The aim is to establish close and permanent association between the hydrographic services of various states, to co-ordinate their efforts with the view of rendering navigation easier and safer, and, so far as possible, to obtain uniformity in hydrographic documents. The Bureau is consultative only and has no authority over national hydrographic offices, which remain entirely independent. It will have a collection of all charts and works published by the various hydrographic and other offices, and will collect papers bearing on hydrography and navigation. An important duty of the Bureau will be the collection and distribution of information on the subject of hydrographic surveys and other publications which are being prepared in the various national offices, and it will also undertake the organisation of an International Hydrographic Conference, if possible, every five years. The Bureau is directed by a board, of which the present members are: Vice-Admiral Sir J. Parry, president; Rear-Admiral J. M. Phaff (Netherlands); Captain S. H. Müller (Norway), and Captain G. Spicer-Simson (Great Britain). The address of the Bureau is, 3 rue du Port, Monaco.

THE British Non-Ferrous Metals Research Association has just issued, in its Quarterly Bulletin, a Union List of periodicals of interest for reference on industrial metallurgy. The service provided by 14 libraries in London, Birmingham, and Manchester is clearly indicated, so far as concerns the 118 periodicals which have been selected. Since one of the main functions of the Industrial Research Associations is to serve as distributing centres for scientific and technical information to their members, such a key-index should prove of great value and will doubtless be followed by other bodies for their own special subjects. It may also be taken as an indication of the interest that is likely to be taken in the proposed World List of Scientific Periodicals of the Conjoint Board of Scientific Societies.

MR. HARRY ALLCOCK, in a pamphlet entitled "The Power of the Penny," advocates a system of decimal coinage of which the shilling would be the unit, divided into ten pennies of a new series, each of which would be worth $1\frac{1}{5}$ of the existing penny; in other words, an existing sixpence would represent five of the new pennies. His view is that the present time is specially favourable for a reform of this kind, which would contribute to the reduction of postal and other charges, which have been raised from 1d. to $1\frac{1}{2}$d., to a penny of the new issue. One thing is obvious, that the currency is at present in an unsatisfactory condition requiring the careful consideration of experts, and the possibility of adopting a decimal system might well form part of such an inquiry. Mr. Allcock has not dealt with the question of fractions of a penny. Each of his new pennies would have to be divided into ten smaller coins, representing $\frac{3}{25}$ of the existing penny in value: in other words, the old-fashioned halfpenny would have to give place to a new coin of higher value.

THAT well-known optical toy, the kaleidoscope, is occasionally used to illustrate the principles of reflection and to study symmetrical patterns. A simple modification has appeared under the name of a "patternscope" in which two metallic reflectors and a glass window form the three sides of a hollow triangular prism about 3 in. long and closed at both ends. A number of small curvilinear pieces of celluloid and glass of different shapes and colours are enclosed, which together with their reflections form an endless variety of beautiful patterns which can be seen through the window more comfortably than is possible through the eyepiece of the kaleidoscope, and also can be seen by more than one person at one time. Either end of the prism may be used as the base, each having a different coloured design on the inside and so adding to the number of patterns obtainable. The instruments are sold by Messrs. "Patternscopes," 85 Duckett Road, Harringay, London, N.4.

DR. L. SILBERSTEIN, mathematical physicist of the Research Laboratory, Eastman Kodak Company, has been appointed an associate editor of the Journal of the Optical Society of America.

SIR WILLIAM PHIPSON BEALE, who died on April 13 last, bequeathes, on the death of his wife, sums of 5000*l.* and 200*l.* to the Royal Institution of Great Britain and the Mineralogical Society respectively.

DR. GORDON HOLMES will deliver the Croonian Lectures of the Royal College of Physicians of London, on Tuesdays and Thursdays, June 8, 13, 15, 20, at 5 o'clock, at the College, Pall Mall East. His subject will be: "The Symptoms of Cerebellar Disease and their Interpretation."

AT the anniversary meeting of the Royal Geographical Society held on May 29, the following officers were elected: *President*: Lord Ronaldshay; *Vice-presidents*: Sir Francis Younghusband, Col. Sir Charles Close, Dr. D. W. Freshfield, Lord Edward Gleichen, Sir T. H. Holdich, and Sir J. Scott Keltie;

Treasurer: Mr. E. L. Somers Cocks; *Trustees*: Lord Curzon of Kedleston and Mr. H. Yates Thompson; *Hon. Secretaries*: Dr. A. P. Maudslay and Lieut.-Col. E. M. Jack; *Foreign Secretary*: Sir Maurice de Bunsen; *Members of Council*: Mr. Henry Balfour, Prof. R. Beazley, Sir Sidney Burrard, Mr. Oliver Bury, Lord Chelmsford, Prof. J. Norman Collie, Sir W. Martin Conway, Sir C. L. Des Graz, Sir Henry Galway, Sir Sidney Harmer, Dr. D. G. Hogarth, Col. C. K. Howard Bury, Admiral Sir Edward Inglefield, Mr. P. Lake, Sir Henry McMahon, Prof. J. L. Myres, Capt. C. W. R. Royds, Major-Gen. Sir Frederick Sykes, Brig.-Gen. Sir Percy Sykes, Dr. A. F. R. Wollaston, and Mr. J. M. Wordie.

MESSRS. DULAU AND CO., LTD., 34 Margaret Street, W.1, have just issued a catalogue (No. 93) of second-hand books in zoology offered for sale by them. Upwards of 3000 works are listed under the following headings: entomology and Arachnida; conchology and Mollusca; minor classes; general zoology; Mammalia, fishes, reptiles, etc.; ornithology and oology.

MESSRS. BERNARD QUARITCH, Ltd. (11 Grafton Street, W.1) have just issued a catalogue (No. 370) of important and rare second-hand books on natural history. Upwards of 2000 titles are listed under "General Works" and eleven classified divisions. Mr. F. Edwards (83 High Street, Marylebone, W.1) has just circulated Catalogue No. 431, which is largely devoted to publications of learned and scientific societies, and to works on the topography of the English counties.

Our Astronomical Column.

LARGE FIREBALL.—On May 21, at 12.32 G.M.T., a large meteor was observed by the well-known variable star observer, M. Felix de Roy, at Antwerp, Belgium. The object moved slowly among the stars of Leo, and left a tail of sparks like a rocket. Its path was from 169° + 9° to 155° + 18°. The same meteor was observed by Mr. J. P. M. Prentice, at Stowmarket, and he recorded the path from 203° + $1\frac{1}{2}$° to 179° + $15\frac{1}{2}$°. The duration was estimated at six seconds. Comparing the two observations the radiant point is indicated at 280° − 33° in Sagittarius. The height of the object was from about 60 to 57 miles and the velocity 15 miles per second. The meteor passed over the region from the south-west of Surrey to south of Warwick.

It is possible that the object radiated from Scorpio at 250° − 27°, and that its height was 60 to 42 miles, but the observations are not quite conclusive, and more data are required.

COMETS.—There is great difference of opinion as to the magnitude of Skjellerup's comet; Dr. Steavenson makes it mag. 9; other observers, mag. 12. The following approximate orbit has been deduced from observations at Heidelberg, Yerkes Obs., and Milan, on May 20, 21, 22.

T	1922, May 19, 22 G.M.T.
ω	1° 15′ 55″
Ω	207 56 17
i	21 19 4
log q	9·94569

EPHEMERIS FOR GREENWICH MIGNIGHT.

	R.A. h. m. s.	N. Decl.	log r.	log Δ.
June 2	9 38 28	36° 34′	9·9638	9·5856
6	10 18 28	40 58	9·9747	9·5680
10	11 4 53	44 39	9·9871	9·5592
14	11 57 13	47 5	0·0011	9·5600
18	12 51 8	48 2	0·0161	9·5695

The comet should be looked for as soon as the sky is dark; its path lies through Lynx (near Alpha on May 30), Leo Minor, and Ursa Major (near Mu on June 6, near Psi on June 10). Mr. G. Merton points out that the orbit closely resembles that of comet 1830 I; identity does not seem to be possible, but the two comets are probably portions of a primitive single comet.

The Annals of Tokyo Observatory, Tom. v., fasc. 5, contains an investigation of the perturbations of Wolf's periodic comet from 1884 to 1918, by M. Kamensky, Director of Vladivostock Naval Obs., who has revised the work of M. Thraen, finding several small corrections, which produce a marked improvement in the comparison with observation. Definitive elements are given for each return, the perturbations by all planets except Mercury, Uranus, and Neptune having been computed. M. Kamensky notes that there will be a close approach of the comet to Jupiter at the end of 1922; "it will experience such large perturbations that it is doubtful whether its seventh return to the sun—provided that it takes place—will be capable of being connected with the six preceding ones by a common system of elements." It is interesting to note that Brooks's periodic comet (1889 V) also makes a close approach to Jupiter this year, about the middle of June.

Lick Observatory Bull. No. 334 contains an investigation by H. M. Jeffers of the orbits of the two components of Taylor's comet, 1916 I, which was discovered at Capetown on November 24, 1915, as a small nebulosity 20″ in diameter, with an eccentric nucleus. On February 9, Barnard found the comet to be double, the two components being 10″ apart; the northern component was at first fainter, but afterwards became the brighter, and remained visible for two months after the southern one had disappeared; the following are the definitive elements found for the two components; perturbations by Venus, Earth, Mars, Jupiter, Saturn have been applied. They are for the equinox of 1916·0.

Epoch and Osc.	Northern Component. 1916, Jan. 21, 0 G.M.T.	Southern Component. 1916, Jan. 21, 0 G.M.T.
M	− 1° 32′ 6″·4	− 1° 32′ 4″·9
ω	354 47 57·7	354 47 21·8
Ω	113 54 10·2	113 54 25·1
i	15 31 40·6	15 31 27·8
ϕ	33 7 29·6	33 6 36·6
μ	557″·274	557″·695
log a	0·535959	0·535740

The linear distance between the components was least at perihelion, when it was 0·000047 astr. unit. Four months later it was 0·000168. It is noted that in the case of Biela's comet the distance was a maximum at perihelion. The elements show some resemblance to those of Daniel's comet of 1909, but identity is not possible. Taylor's comet is due at perihelion about June 13, 1922, but the conditions are unfavourable for observation; it may, however, be detected in the autumn.

The splitting of Taylor's comet does not appear to have been caused by Jupiter; the nearest approach in the revolution preceding 1916 was 1·1 unit, which is scarcely close enough to explain disruption.